May 7, 1

Mr. William A. Eaton
Vice President, Operations GGNS
Entergy Operations, Inc.
P. O. Box 756
Port Gibson, MS 39150

SUBJECT: GRAND GULF NUCLEAR STATION, UNIT 1 - ISSUANCE OF AMENDMENT RE: REFUELING EQUIPMENT INTERLOCKS (TAC NO. M95490)

Dear Mr. Eaton:

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 138 to Facility Operating License No. NPF-29 for the Grand Gulf Nuclear Station (GGNS), Unit 1. This amendment revises the Technical Specifications (TSs) in response to your application dated January 12, 1999, that supersedes amendment request submittal dated May 31, 1996.

The amendment adds an additional required action to the Limiting Condition for Operation (LCO) 3.9.1, "Refueling Equipment Interlocks," of the GGNS TSs. The additional action will allow an alternative to the current action for one or more inoperable refueling equipment interlocks. The current action is to "suspend in-vessel fuel movement with equipment associated with the inoperable interlock(s)." The alternative action will be to (1) insert a control rod withdrawal block, and (2) verify all control rods are fully inserted in core cells containing one or more fuel assemblies. The amendment would also revise the Bases for LCO 3.9.1 actions to describe the alternative action.

A copy of our related Safety Evaluation is also enclosed. A Notice of Issuance will be included in the Commission's next biweekly Federal Register notice.

Sincerely,

ORIGINAL SIGNED BY

S. Patrick Sekerak, Project Manager, Section 1
Project Directorate IV & Decommissioning
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-416

Enclosures: 1. Amendment No. 138 to NPF-29
2. Safety Evaluation

cc w/encls: See next page

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

ENTERGY OPERATIONS, INC.

SYSTEM ENERGY RESOURCES, INC.

SOUTH MISSISSIPPI ELECTRIC POWER ASSOCIATION

ENTERGY MISSISSIPPI, INC.

DOCKET NO. 50-416

GRAND GULF NUCLEAR STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 138
License No. NPF-29

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Entergy Operations, Inc. (the licensee) dated January 12, 1999, superseding its original application dated May 31, 1996, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

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2. Accordingly, the license is amended by changes to the Technical Specifications, as indicated in the attachment to this license amendment; and paragraph 2.C.(2) of Facility Operating License No. NPF-29 is hereby amended to read as follows:

   (2) Technical Specifications

   The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. , are hereby incorporated into this license. Entergy Operations, Inc. shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance and shall be implemented within 30 day of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Robert A Gramm

Robert A. Gramm, Chief, Section 1
Project Directorate IV & Decommissioning
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: May 7, 1999

ATTACHMENT TO LICENSE AMENDMENT NO. 138

FACILITY OPERATING LICENSE NO. NPF-29

DOCKET NO. 50-416

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove	Insert
3.9-1	3.9-1
--	3.9-1a
B 3.9-3	B 3.9-3
B 3.9-4	B 3.9-4

3.9 REFUELING OPERATIONS

3.9.1 Refueling Equipment Interlocks

LCO 3.9.1 The refueling equipment interlocks shall be OPERABLE.

APPLICABILITY: During in-vessel fuel movement with equipment associated with the interlocks.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required refueling equipment interlocks inoperable.	A.1 Suspend in-vessel fuel movement with equipment associated with the inoperable interlock(s).	Immediately
	OR	
	A.2.1 Insert a control rod withdrawal block.	Immediately
	AND	
	A.2.2 Verify all control rods are fully inserted in core cells containing one or more fuel assemblies.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.1.1	Perform CHANNEL FUNCTIONAL TEST on each of the following required refueling equipment interlock inputs: a. All-rods-in, b. Refuel platform position, and c. Refuel platform main hoist, fuel loaded.	7 days

BASES (continued)

APPLICABILITY

In MODE 5, a prompt reactivity excursion could cause fuel damage and subsequent release of radioactive material to the environment. The refueling equipment interlocks protect against prompt reactivity excursions during MODE 5. The interlocks are only required to be OPERABLE during in-vessel fuel movement with refueling equipment associated with the interlocks.

In MODES 1, 2, 3, and 4, the reactor pressure vessel head is on, and no fuel loading activities are possible. Therefore, the refueling interlocks are not required to be OPERABLE in these MODES.

ACTIONS

A.1, A.2.1, and A.2.2

With one or more of the required refueling equipment interlocks inoperable, the unit must be placed in a condition in which the LCO does not apply or the Surveillances are not needed. This can be performed by ensuring fuel assemblies are not moved in the reactor vessel or by ensuring that the control rods are inserted and can not be withdrawn.

Therefore, Required Action A.1 requires that in-vessel fuel movement with the affected refueling equipment must be immediately suspended. This action ensures that operations are not performed with equipment that would potentially not be blocked from unacceptable operations (e.g., loading fuel into a cell with a control rod withdrawn). Suspension of in-vessel fuel movement shall not preclude completion of movement of a component to a safe position.

Alternatively, Required Actions A.2.1 and A.2.2 require that a control rod withdrawal block be inserted and that all control rods subsequently verified to be fully inserted. Required Action A.2.1 ensures that no control rods can be withdrawn. This action ensures that control rods cannot be inappropriately withdrawn because an electrical or hydraulic block to control rod withdrawal is in place. Required Action A.2.2 is performed after placing the rod withdrawal block in effect and provides a verification that all rods in core cells containing one or more fuel assemblies are fully inserted. The allowance to not verify that control rods associated with defueled cells are inserted is

(continued)

BASES

ACTIONS (continued)

to allow control rods to be withdrawn in accordance with LCO 3.10.6 while complying with these actions. This verification that all required control rods are fully inserted is in addition to the periodic verifications required by SR 3.9.3.1 and SR 3.10.6.2. Like Required Action A.1, Required Actions A.2.1 and A.2.2 ensure that unacceptable operations are blocked (e.g., loading fuel into a cell with the control rod withdrawn.)

SURVEILLANCE REQUIREMENTS

SR 3.9.1.1

Performance of a CHANNEL FUNCTIONAL TEST demonstrates each required refueling equipment interlock will function properly when a simulated or actual signal indicative of a required condition is injected into the logic. The CHANNEL FUNCTIONAL TEST may be performed by any series of sequential, overlapping, or total channel steps so that the entire channel is tested.

The 7 day Frequency is based on engineering judgment and is considered adequate in view of other indications of refueling interlocks and their associated input status that are available to unit operations personnel.

REFERENCES

1. 10 CFR 50, Appendix A, GDC 26.

2. USAR, Section 7.7.1.5.

3. USAR, Section 15.4.1.1.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 138 TO FACILITY OPERATING LICENSE NO. NPF-29

ENTERGY OPERATIONS, INC., ET AL.

GRAND GULF NUCLEAR STATION, UNIT 1

DOCKET NO. 50-416

1.0 INTRODUCTION

By letter dated May 31, 1996, Entergy Operations, Inc. (EOI or the licensee), submitted a request for changes to the Grand Gulf Nuclear Station, Unit 1 (GGNS) Technical Specifications (TSs), Section 3.9.1, "Refueling Equipment Interlocks." The original notice was published in the Federal Register on June 16, 1996 (61 FR 31178). Additional information was provided on September 30, 1996, that did not change the scope of the original application and the initial proposed no significant hazards consideration determination.

Subsequently, in a letter dated January 12, 1999, the licensee submitted a proposed amendment that superseded, in its entirety, the original May 31, 1996, application and supplement. The new application was noticed in the Federal Register on February 10, 1999 (64 FR 6695), and it was stated that the notice associated with the original May 31, 1996, application was being superseded.

The proposed changes would revise TS Limiting Condition for Operation (LCO) 3.9.1, "Refueling Equipment Interlocks," by adding an alternative to the current action for one or more inoperable refueling equipment interlocks. The current action is to "suspend in-vessel fuel movement with equipment associated with the inoperable interlock(s.)" The alternative action will be to (1) insert a control rod withdrawal block, and (2) verify all control rods are fully inserted in core cells containing one or more fuel assemblies. The amendment would also revise the Bases for LCO 3.9.1 actions to describe the alternative actions.

2.0 BACKGROUND

Refueling equipment interlocks restrict the operation of the refueling equipment or the withdrawal of control rods to reinforce procedures that prevent the reactor from achieving criticality during refueling operations. The refueling interlock circuitry senses the conditions of the refueling equipment and control rods. Depending on the sensed conditions, interlocks are actuated to prevent the operation of the refueling equipment or the withdrawal of control rods.

General Design Criterion (GDC) 26 of 10 CFR Part 50, Appendix A, requires that one of the two required independent reactivity control systems be capable of holding the reactor core subcritical under cold conditions. Therefore, two channels of instrumentation are provided. One or both channels receive input from (1) the position of the refueling platform, (2) the loading of the refueling platform main hoist, (3) the full insertion of all control rods, and (4) the

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reactor mode switch. With the mode switch in the shutdown or refueling position, the indicated conditions are combined in the logic circuits to determine if all restrictions on refueling equipment operations and control rod insertion are satisfied.

To prevent criticality during refueling, the refueling interlocks ensure that fuel assemblies are not loaded with any control rod withdrawn. To preclude these conditions from developing, the all-rods-in, the refueling platform position, and the refueling platform main hoist fuel loaded inputs are required to be operable. These inputs are combined in logic circuits that provide refueling equipment or control rod blocks to prevent operations that could result in criticality during refueling operations.

The purpose of the proposed amendment is to provide an additional alternative action to permit the licensee to continue core alterations in the event the refueling equipment interlocks become inoperable.

3.0 EVALUATION

The original TS amendment request dated May 31, 1996, and the additional information provided by the licensee on September 30, 1996, was evaluated under the joint Nuclear Regulatory Commission (NRC) - Nuclear Energy Institute Technical Specification Task Force (TSTF) process. The TSTF process enables plants that have adopted the improved Standard Technical Specifications (STS or ITS) to propose, and have approved, generic changes to the ITS. This process also ensures that the ITS remain, in fact, a true standard for plants of similar design. The proposed license amendment to TS Section 3.9.1, "Refueling Equipment Interlocks," submitted by EOI was identified as "TSTF-225." The changes proposed under this TSTF affected NUREG-1433 and NUREG-1434. These NUREGs serve as the bases for the General Electric (GE) BWR/4 and BWR/6 ITS respectively. On April 20, 1998, TSTF-225 was approved by the Technical Specifications Branch.

On February 21, 1995, License Amendment No. 120 to NPF-29 approved GGNS's conversion to the BWR/6 ITS based upon NUREG-1434. GGNS has been operating under the ITS since that time. The January 12, 1999, amendment request incorporated changes to the Required Actions paragraph in order to be consistent with changes to the BWR ITS NUREGs 1433 and 1434 approved under TSTF-225. The licensee has based this TS amendment request on TSTF-225, which applies to the GGNS TSs.

The proposed changes to the Required Actions for LCO 3.9.1 will improve consistency within the TS with respect to the Required Actions for LCO 3.9.4, "Control Rod Position Indication." LCO 3.9.4 controls the operability of the control rod position indicators, which is a support system for the refueling interlocks controlled by LCO 3.9.1 since the position indicators provide information to the all-rods-in interlock. LCO 3.9.4 requires that, when one or more control rods do not have the required position indication operable, all insertable control rods be inserted and fuel movement and control rod withdrawal be suspended (Required Actions A.1.1, A.1.2 and A.1.3), or that the associated control rod(s) be inserted and disarmed (Required Actions A.2.1 and A.2.2.) If Required Actions A.2.1 and A.2.2 are complied-with, then refueling activities can continue. The proposed Required Actions for LCO 3.9.1 are consistent with the current Required Actions for LCO 3.9.4 in that they require either fuel movement be suspended or control rod withdrawal be blocked, and that all control rods required to be inserted be verified to be inserted.

As discussed in the Bases for the current Required Action, the purpose of the current requirement is to ensure that operations are not performed with equipment that would potentially not be blocked from unacceptable operations (e.g., loading fuel into a cell with a control rod withdrawn). The method that the refueling equipment interlocks use to perform their function whenever fuel is being moved in the reactor vessel is to block control rod withdrawal. Conversely, when a control rod is withdrawn (except as allowed by LCO 3.10.6) the refueling interlocks prevent fuel from being moved in the vessel. The proposed change will allow the refueling interlocks to be inoperable and fuel movement to continue if a control rod withdrawal block is in effect and all control rods are verified to be fully inserted, thereby ensuring that fuel loading will not occur with a control rod inappropriately withdrawn.

The first refueling equipment interlock safety function is to block control rod withdrawal whenever fuel is being moved in the reactor vessel. The proposed alternative Required Actions will perform this function by requiring that a control rod block be placed in effect.

The second refueling equipment interlock safety function is to prevent fuel from being loaded into the vessel when a control rod is withdrawn. This function will continue to be performed by the proposed alternate LCO 3.9.1 Required Actions. Required Action A.2.1 will require that a control rod block be placed in effect thereby ensuring that control rods are not subsequently inappropriately withdrawn. Following placing the control rod withdrawal block in effect, Required Action A.2.2 will require that all control rods be verified to be fully inserted in core cells containing one or more fuel assemblies. This verification is in addition to the requirements to periodically verify control rod position in Surveillance Requirement (SR) 3.9.3.1 and SR 3.10.6.2. These proposed Required Actions will ensure that control rods are not withdrawn and cannot be inappropriately withdrawn because an electrical or hydraulic block to control rod withdrawal is in place. Like Required Action A.1, this will ensure that unacceptable operations are blocked (e.g., loading fuel into a cell with a control rod withdrawn). In addition, Required Action A.2.2 is consistent with the current allowances of LCO 3.10.6.

Therefore, the staff considers this change acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Mississippi State official was notified of the proposed issuance of the amendment. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (64 FR 6695, February 10, 1999). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: R. J. Fretz

Date: May 7, 1999